

## The Influence of Mother's Personality on the Decision about the Elective Cesarean Section: A Pilot Study with a Sample of 16 New Mothers

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### Abstract

**Objective:** To investigate the psychological profile of a sample of new mothers, who requested an elective caesarean section (CS), compared with a group of women who had a CS in emergency. Furthermore, the study examined psychiatric, environmental, medical and obstetrical risk factors related to the mother's choice of an elective CS, in order to develop specific intervention strategies.

**Methods:** A sample of 16 mothers aged  $34.88 \pm 8.53$  years were enrolled and assessed using a semi-structured face-to-face interview, the Minnesota Personality Inventory Test-2 (MMPI-2) and the Edinburgh Postnatal Depression Scale (EPDS). The sample was divided in two groups: cases (8 women who had an elective CS) and controls (8 women who had a CS in emergency).

**Results:** The analysis identified a statistical significance among the two groups with a higher prevalence in cases's group of: previous mood disorders (100% of the cases group), maternal comorbidities (100% of the cases group), neuroticism (MMPI-2's scale 'NEGE':  $p=0.013$ ), 'defensive' attitude (MMPI-2's scale 'K':  $p=0.013$ ), hypochondria (MMPI-2' scale 'Hs':  $p=0.046$ ), health concerns (MMPI-2's scale 'Hea':  $p=0.013$ ) and depression (MMPI-2's scales 'D':  $p=0.012$  and 'Dep':  $p=0.023$ ; EPDS's scores:  $p=0.007$ ), with a general tendency to have higher scores of psychopathology ( $p=0.033$ ). No statistical significance was found concerning socio-demographic information and obstetrical risk factors.

**Conclusion:** Women who chose CS without medical indications showed more somatic anxiety levels, expressed with a hypochondriac rumination and an obsessive way to control their body. This seems associated with more neuroticism and more symptoms of depression which may lead to a higher risk of develop postnatal depression. Gynaecologists should pay attention to the reasons behind the mother's choice of an election CS by ensuring a detailed psychological counselling and try to mitigate levels of anxiety and fears related to the childbirth.

**Keywords:** Caesarean section; Personality; Anxiety; Hypochondria; Minnesota multiphasic personality inventory

### Introduction

The overall rates of caesarean section (CS) are increasing significantly in many parts of the world [1]. In Europe, Italy ranks in the first place among countries with the highest percentage of CS (37.7%), followed by Portugal (34.8%) and Hungary (33.4%) [2].

According to the ACOG (American College of Obstetrics and Gynaecology), the caesarean delivery on maternal request is defined as "... a primary prelabor caesarean delivery on maternal request in the absence of any maternal or fetal indications" [3].

Maternal request is often pointed as one of the key forces driving the worldwide CS increase [4,5]. In Italy, maternal request accounted from 4.5% to 9% of all CS performed between 1996-2000 [6].

Although it has been shown that CS, especially if conducted without medical indications, is correlated with more maternal [7] and neonatal [8,9] morbidity and maternal [10] and neonatal [11] mortality, many women still say they prefer it because they consider it a safer procedure instead of vaginal delivery [12].

Many studies in the last years have focused on studying the reasons beyond the choice of a CS without medical indications, and many factors have been discussed. Among these, age of the mother, method of conceiving, tokophobia (fear of childbirth), previous negative birth experience, previous caesarean delivery, complicated pregnancy, low socioeconomic status and low income, low education, have already been identified as influencing factors [13-19]. Furthermore women giving birth by CS on request have shown more often a severe psychiatric

disease burden compared with all other women giving birth [20]. In some cases the request may be interpreted like a sign of vulnerability and a real call for help [21]. Also personality may influence a pregnant woman's decision on delivery. Mothers who request an elective CS seemed to be more anxious and more short-tempered (more irritable and more monotony-avoidant) and with less social skills [16].

All these related factors may open a wide range of opportunities to understand more in detail some common issues beyond the CS request and to contribute in managing them in order to reduce the number of CS request without medical indication.

The aims of this pilot study were to investigate:

- Personality of women who requested an elective CS compared with women who had a CS in emergency, using the Minnesota Multiple Personality Inventory-2 (MMPI-2).

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- Psychiatric, environmental, medical and obstetrical risk factors related to the mother's choice of an elective CS, in order to develop specific intervention strategies.

## Materials and Methods

### Sample

This case-control study was performed at the obstetric ward of the Department of Gynaecology and Obstetrics affiliated with the Department of Psychiatry of Policlinico Umberto I, Rome, Italy. 18 pregnant women were randomly selected from the Obstetrics ward and invited to participate at the study, 16 of them agreed. Women were included in this study if they were hospitalized and had a CS no more than 3 days before the assessment. All patients included in this study were clinically stable and aged  $34.88 \pm 8.53$  years. Women were divided in two groups: cases and controls. The first group was made of 8 women who decided to have an elective CS; the second group was made of 8 women who had a CS in emergency. Exclusion criteria for both groups were:

- Refuse to sign informed consent;
- Age < 18;
- Diagnosis of mental retardation or schizophrenia;
- Poor knowledge of Italian or other verbal communication limitations that compromised the ability of the subject to follow the research protocol.

At the time of the enrolment, all participants were informed on the nature and objectives of the study and on their specific contribute in practical terms. Enrolment was voluntary and both verbal and written consent were obtained.

### Data collection

All 16 participants were first assessed with a semi-structured face-to-face interview, administered by one researcher (VP), composed by 22 items to collect information about socio-demographic data, the course of pregnancy, previous pregnancies, maternal comorbidities and previous psychiatric diagnosis. Then participants were assessed with:

- The MMPI-2, Italian version [22]. The MMPI-2 is a 567 item, true/false self-report measure of a person's psychological state. It has 10 clinical scales, 8 validity scales, 16 supplemental scales, 15 content scales, 5 PSY-5 scales, 27 content subscales, 28 Harris-Lingoes subscales and 3 social subscales. The 10 clinical scales detect various features including hypochondriasis (Hs), depression (D), hysteria (Hy), psychopathic deviate (Pd), masculinity-femininity (Mf), paranoia (Pa), psychasthenia (Pt), schizophrenia (Sc), hypomania (Ma), and social introversion (Si). The validity scales (cannot say, VRIN, TRIN, FBS, L, F, K, S) consist in assessing the person for lying, defensiveness, faking good and faking bad and among others issues. The supplemental scales are useful to further deepen some clinical characteristics like anxiety (A), repression (R), ego strength (Es), addiction (MAC-R, APS, AAS), hostility (O-H, Ho), dominance (Do), social responsibility (Re), social adaptability (Mt), gender role (Gm, Gf), presence of post-traumatic stress disorder symptoms (Pk, Ps) and marital distress (MDS). Content scales and subscales help to better describe personality traits like anxiety (Anx), fears (Frs), obsessiveness (Obs), depression (Dep), health concerns (Hea), bizarre mentation (Biz), anger (Ang), cynicism (Cyn), antisocial practices (Asp),

low self-esteem (Tpa), social discomfort (Sod), family problems (Fam), work interference (Wrk) and indicators of negative treatment outcome (Trt). PSY-5 scales explore aggressiveness (AGGR), psychoticism (PSYC), disconstraint (DISC), neuroticism (NEGE) and introversion (INTR). According to Butcher, the content scales are believed to have higher face validity and to reflect more homogenous clinical concepts than many of the predecessors in MMPI. All the mentioned scales were used in the present study. After the MMPI-2 was taken and scored by one researcher (CL), an interpretive report was constructed. Scores were converted to what are called normalized "T-scores" on a scale ranging from 30 to 120. The "normal" range of T-scores is from 50 to 65. Anything above 65 and anything below 50 is considered clinically significant and open for interpretation [23,24].

- The Edinburgh Postnatal Depression Scale (EPDS), Italian version [25]: A 10-question self-rating scale specifically designed for women who are pregnant or just had a baby. This scale has been proven to be an efficient and effective way to identify patients at risk for perinatal depression. A score equal to or greater than 12 indicates moderate to severe depression. The questionnaire was validated in an Italian version and has a high level of validity, reliability, and internal consistency.

### Statistical analysis

Data were collected and analysed using Microsoft Excel statistics software. Mean scores of MMPI-2 scales were calculated. T-test and Chi-square test were used to calculate statistical significance between variables including MMPI-2 scales scores, EPDS scores, socio-demographic characteristics and clinical information of each group. Statistical significance were agreed for a p-value < 0.05%.

### Results

Sample's mean age was  $34.88 \pm 8.53$ . As shown in Table 1, the majority of participants were married or with a stable partner. Additionally, they had mostly high educational levels and most of the participants were employed.

No statistical significance was found among cases vs controls concerning socio-demographic information (Table 1).

As shown in Table 2, statistical significance between the two groups

N (%)	Cases N=8	Controls N=8	Total N=16	p-value
Age (mean) ± SD	35.77 ± 8.97	33.87 ± 8.56	34.88 ± 8.53	0.18
Nationality				0.069
Italian	8 (53.3%)	7 (46.7%)	15 (93.7%)	
Others	0 (0%)	1 (100%)	1 (6.2%)	
Marital status				0.241
Married	7 (53.8%)	6 (46.1%)	13 (81.2%)	
Unmarried	1 (6.7%)	2 (33.3%)	3 (18.7%)	
Educational level				0.264
Missing/Elementary	1 (33.3%)	2 (66.7%)	3 (18.7%)	
High school/University	7 (53.8%)	6 (46.1%)	13 (81.2%)	
Working status				0.934
Unemployed	1 (33.3%)	2 (66.7%)	3 (18.7%)	
Housewife	0 (0%)	2 (0%)	2 (12.5%)	
Freelance professional	1 (25%)	3 (75%)	4 (25%)	
Employee	6 (85.7%)	1 (14.3%)	7 (43.7%)	

Table 1: Characteristics of the study population and p-values performed by Chi-square test.

was found concerning previous psychiatric diagnosis (3 women in the cases group said they had a mood disorder in the past; p-value=0.0128) and maternal comorbidities (4 women in the cases group and none in the controls group had comorbidities like Hashimoto's disease, chronic hypertension, Meniere's syndrome and Erb's palsy; p-value=0.006). No statistical significance was found concerning the presence of previous abortions or VIP (1 woman in the cases group vs 2 women in the controls group) and type of conception (assisted reproductive technology was used by 2 cases and 1 control). Of the whole sample, just 1 woman in the control group was multiparous.

Concerning the psychological profile investigated using the MMPI-2, it was found a general tendency to have higher scores of

psychopathology in women in the cases group (p=0.033). Some differences were found between groups comparing mean scores of the 10 clinical scales and the 8 validity scales of each group (Figures 1 and 2). Particularly, the greatest differences were found between (Table 3):

- Mean scores of scale S (mean in cases group: 41.75, mean in controls group: 49.25) and scale K (mean score in cases group: 42.37, mean score in controls group: 51).
- Mean scores of scale Hs (mean in cases group: 53.5, mean in controls group: 45.87) and scale Pt (mean in cases group: 50.5, mean in controls group: 42.74).

Statistically significant differences between the two groups

N (%)	Cases N=8	Controls N=8	Total N=16	p-value
Vip/abortion	1 (33.3%)	2 (66.7%)	3 (18.7%)	0.264
Mood disorders	3 (100%)	0 (0%)	3 (18.7%)	<b>0.0128*</b>
Maternal comorbidity	4 (100%)	0 (0%)	4 (25%)	<b>0.0067*</b>
Type of conception				0.105
Natural	6 (46.1%)	7 (53.8%)	13 (81.2%)	
By assisted reproductive technology (ART)	2 (66.7%)	1 (33.3%)	3 (18.7%)	

\*=statistical significance.

Table 2: Descriptive analysis of women in the two study groups, performed by Chi-square test.

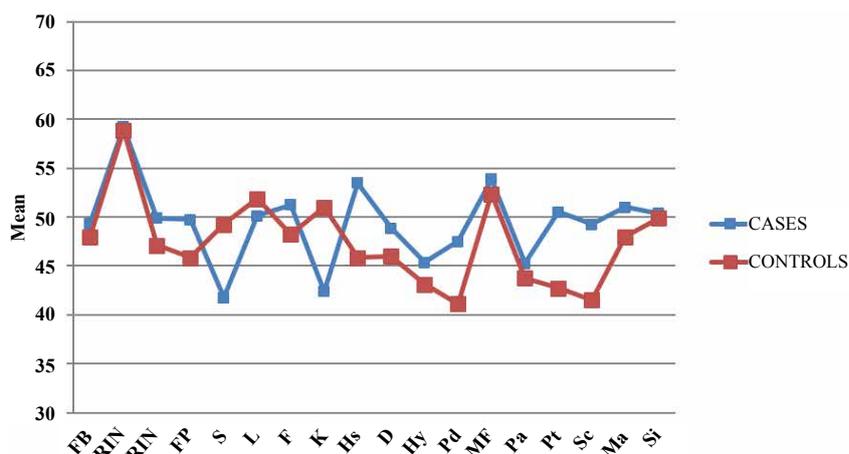


Figure 1: Mean scores of clinical and validity scales between the two groups.

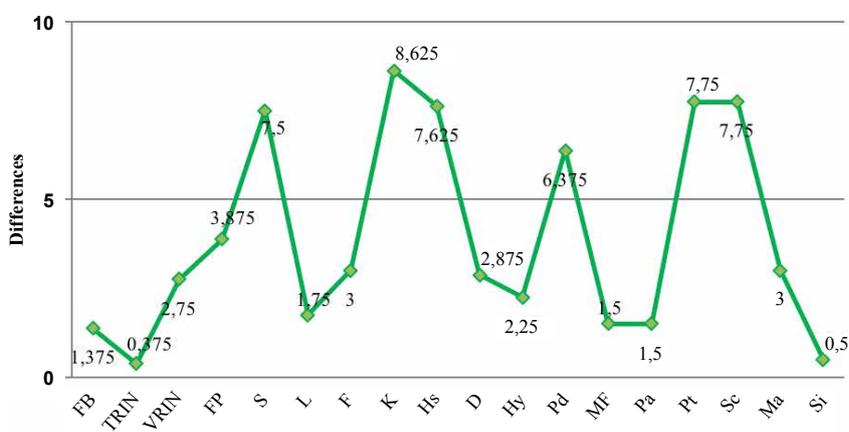


Figure 2: Differences between mean scores of validity and clinical scales.

were found regarding MMPI-2 scores which crossed the “normal” range. Compared to controls, women in cases group had more frequently clinically significant scores concerning the following psychopathological characteristics (Table 4 and Figure 3):

- Depression (scale D,  $p=0.012$ ; scale Dep,  $p=0.023$ );
- Neuroticism (scale NEGE,  $p=0.013$ );
- Manic state (scale Ma,  $p=0.046$ );
- Hypochondria (scale Hs,  $p=0.013$ );
- Health concerns (scale Hea,  $p=0.046$ );
- ‘Defensive’ attitude (scale K,  $p=0.013$ ).

No statistically significant differences were found in others MMPI-2 scales between groups.

Concerning data about EPDS questionnaire, it was found that

43.75% of the whole sample crossed the EPDS’s cut-off for moderate to severe depression (score>12). Mean score in women who crossed the cut-off was 15, mean score in women who didn’t cross the cut-off was 3.78. As shown in (Table 5 and Figure 4), the cut-off for depression was crossed by 6 women in the cases group (85.71%) and just 1 woman in the controls group (14.29%) showing a statistical significance for the EPDS depression variable ( $p=0.0072$ ).

### Conclusion

Caesarean delivery on maternal request has a multifactorial genesis, including social, cultural, medical and psychological factors. Particularly, psychological factors seem to strongly influence this important choice which consists in undergoing a surgical procedure in the absence of any maternal or fetal indications and correlated with more morbidity and mortality compared to the vaginal delivery [7-11]. The most common reasons behind this choice are tokophobia [13,14,16] and previous or referred negative birth experience [17],

	Scale S	Scale K	Scale Hs	Scale Pt
Cases	41.75	42.37	53.5	50.5
Controls	49.25	51	45.87	42.75
Difference	7.5	8.3	7.6	7.7

Table 3: MMPI-2’s clinical and validity scales: mean scores and differences between the two groups.

N (%)	Cases N=8	Controls N=8	Total N=16	p-value
Scale D	2 (100%)	0 (0%)	2 (12.5%)	0.012*
Scale Dep	5 (83.3)	1 (16.6%)	6 (37.5%)	0.023*
Scale NEGE	3 (100%)	0 (0%)	3 (18.7%)	0.013*
Scale Ma	4 (80%)	1 (20%)	5 (31.2%)	0.046*
Scale Hs	3 (100%)	0 (0%)	3 (18.7%)	0.013*
Scale Hea	4 (80%)	1 (20%)	5 (31.2%)	0.046*
Scale K	3 (100%)	0 (0%)	3 (18.7%)	0.013*

\*=statistical significance.

Table 4: Frequency of clinically significant scores on different MMPI-2’s scales, between cases vs controls. P-value performed by T-test.

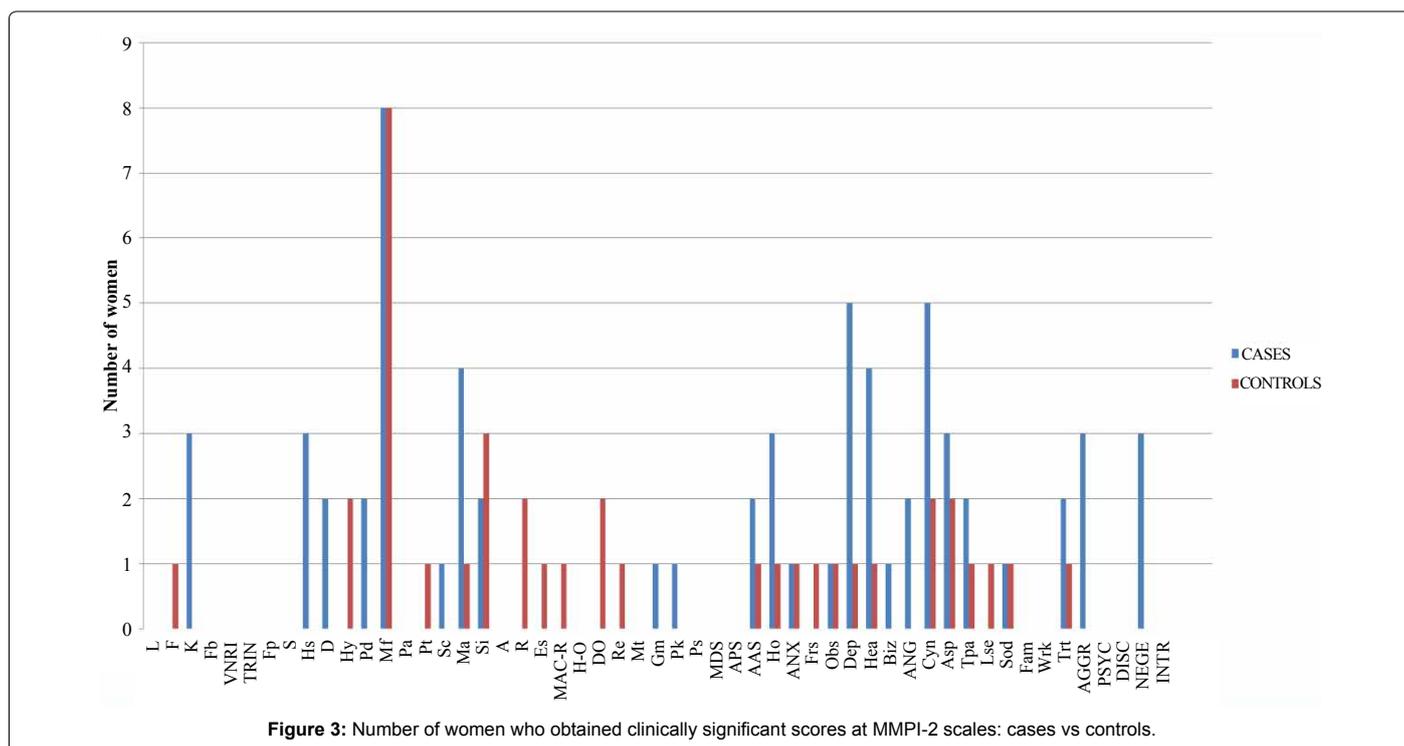
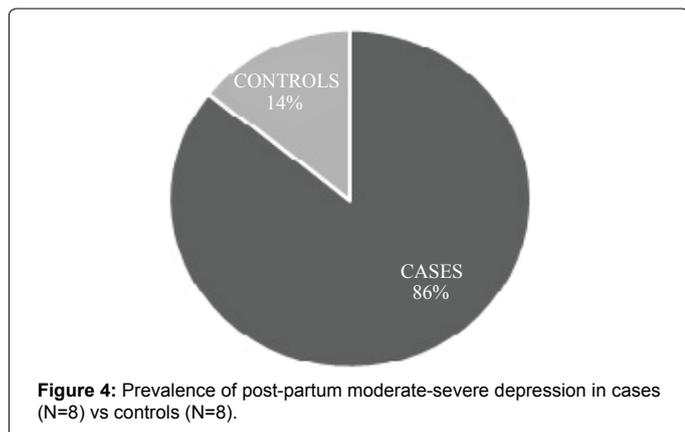


Figure 3: Number of women who obtained clinically significant scores at MMPI-2 scales: cases vs controls.

	Sample N (%)	Cases N (%)	Controls N (%)	p-value
EPDS score				0.0072*
<12	9 (56.2%)	2 (22.2%)	7 (77.8%)	
≥12	7 (43.7%)	6 (85.7%)	1 (14.3%)	

\*=statistical significance.

**Table 5:** EPDS scores differences in the two groups, performed by Chi-square test.



but these motivations need more detailed psychological explanations. In recent studies about this topic, mothers who requested an elective CS seemed to be more anxious, depressed, irritable and with low self-esteem and more somatization problems [16,20].

This work helped to better understand psychological and psychopathological differences between a group of primiparous women who requested a CS in election and a group of women who had a CS in emergency, in which just one was multiparous. Multiparity seemed not to be involved in the previous results. One of the identified differences between the two groups was that the first group had higher levels of somatic anxiety, expressed by higher scores on the MMPI-2 hypochondria scale (Hs). In these women, this kind of body-related anxiety seems to be expressed with a hypochondriac rumination and an obsessive way to control their body. Mothers in cases group had also higher scores on the MMPI-2 neuroticism scale (NEGE) which means more anxiety, pessimism and self-doubt. Looking at the MMPI-2 validity scales (S and K scales), a 'defensive' approach was also noted in these women. This could mean that women who choose an elective caesarean delivery tend not to live openly their feelings, experiencing them just in a concrete and practical way without being able to symbolize them. Planning the delivery, removing every physiological worry related to the vaginal delivery, is an example of their 'defensive' and 'avoidant' attitude. It is probably for this reason that these mothers prefer to choose a less-involving, surgical procedure, regardless of his well-known dangerousness, instead of a natural childbirth. The birth-event may appear to them as overly emotional and not controllable.

Concerning depression, results from MMPI-2 and EPDS scores matched. Women of the cases group have a more depressive personality experimenting more depressive feelings which means a higher risk to develop depression in the post-partum period. Some specific characteristics of personality, in fact, seem to have a key role in clinical manifestations of perinatal depression. For this reason, it is important to detect them to identify mothers at risk and to plan targeted therapeutic interventions [26-28]. Furthermore, the presence in the cases group of a more frequent history of past mood disorders, point up the vulnerability of these women to head into depression.

Despite the limit of a small sample, this pilot study has led to focus more in detail the psychological characteristics of mothers who request CS without medical indication. Further studies with a larger sample could consolidate these findings. Furthermore, to get over the bias of an altered psychological state immediately after the CS, it would be interesting to assess the same women a certain period of time after the delivery, to verify the consistency of the results.

In conclusion, a detailed psychological counselling in mothers who express the wish to have a CS without medical indications should be considered and integrated in the standard gynaecological counselling. Particularly the gynaecologist, besides explaining the dangerousness of the surgical procedures, should:

- Explore the reasons behind the woman's decision of CS, trying to detect women at risk for postnatal depression;
- Try to reduce conflicts originating from the decision about delivery;
- Try to mitigate levels of anxiety and fear related to the childbirth;
- Improve the mother's subjective satisfaction about the birth-event also promoting a closer mother-child relationship.

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